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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/058,947	01/27/2002	Toru Yokohata	0941.66131	4645

7590 06/08/2004
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EXAMINER

DAVIDSON, DAN

ART UNIT	PAPER NUMBER
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2651

DATE MAILED: 06/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/058,947

Applicant(s)

YOKOHATA ET AL.

Examiner

Dan I Davidson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-12 is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-8 are rejected under 35 U.S.C. 102(e) as being anticipated by Burga et al (US 6,216,529 B1).

Re claim 1; Burga et al disclose a magnetic disk evaluation apparatus, comprising: an evaluation head for evaluating a magnetic disk (col. 6, lines 1-2); and a support member for supporting the evaluation head (Fig. 5, 124; col. 5, lines 44-46), wherein the support member supports the evaluation head in a state where a flying surface of the evaluation head and a surface of a magnetic disk make a flying pitch angle of 95 microradians or more (col. 6, lines 14-16; 95 microradians is approx. .0055 degrees).

Re claim 2; Burga et al disclose controlling the pitch angle by altering the location that suspension arm is mounted to glide head (col. 6, lines 16-18). This encompasses Applicants' claimed limitation.

Re claim 3; Burga et al disclose that a load of 3.5gf or more is provided to the evaluation head by the support member (col. 5, lines 48-51).

Re claim 4; Burga et al disclose that the evaluation head has a negative pressure inducing configuration, and thereby a negative pressure to attract the evaluation head to the magnetic disk on the basis of an airflow caused by a rotation of the magnetic disk is generated (col. 7, line 66 – col. 8, line 8).

Re claim 5; Burga et al disclose that the rigidity of an air film formed between the evaluation head and the magnetic disk is 0.33 gf/nm or more (see Fig. 10; 9.5gf load; 0.5 microinch flying height = 12.5 nm).

Re claim 6; Burga et al disclose that a lower limit value of a flying-height of the evaluation head from the surface of the magnetic disk in a state where the glide height evaluation head is not in contact with the magnetic disk is evaluated by the evaluation head (col. 8, lines 6-8).

Re claims 7 and 8; Burga et al disclose that the evaluation head includes a flying surface formed by a film of a diamond like carbon (col. 5, lines 41-43; "carbide"). They further disclose that well-known techniques can be used to further increase the durability of the glide head (col. 5, lines 41-43). This satisfies the limitation at claim 8.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Burga et al (US 6,216,529 B1) as applied to claims 1 and 7 above, and further in view of Ku et al (US 6,267,004 B1).

Burga et al disclose the limitations at claims 1 and 7 as discussed above.

Burga et al do not disclose having a convex part on the flying surface (having a formed film of protection material). Ku et al teach having a convex part on the flying surface (col. 7, lines 11-18; "positive crown"). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to have a convex part on the flying surface in Burga et al; motivation being allowing the heads to fly at a lower linear velocity (col. 7, lines 19-22).

Allowable Subject Matter

6. Claims 10-12 are allowed over the prior art of record.

Re claim 10; the prior art of record, and in particular Burga et al (US 6,216,529 B1), fails to teach or suggest a detected signal dividing means for dividing a detected contact signal into frequency components of first and second frequency bands; and a contact decision means that detects a contact of the evaluation head with the convex

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part of the lubricant in response to detection of a signal component exceeding a designated threshold only in the second frequency band.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Meyer et al (US 6,577,466 B2) teach using a glide head with a negative pressure air bearing structure.

Polycarpou et al (US 6,466,410 B2) teach a slide with contact pads formed from diamond-like carbon.

Sugimoto et al (US 5,824,920 A) teach a method of obtaining a limit glide height.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dan I Davidson whose telephone number is (703) 308-8535. The examiner can normally be reached on Monday-Friday from 8:30AM to 5:00PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R Hudspeth, can be reached on (703) 308-4825. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DID

Dan I Davidson
June 1, 2004



DAVID HUDSPETH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600